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DETAILED ACTION

Amendments:

Claim 8.

An isolated arabinose isomerase polypeptide comprising SEQ ID NO: 4 encoded by a polynucleotide from *Thermotoga neopolitana*.

Claim 9.

An isolated polynucleotide comprising SEQ ID NO: 3 that encodes for an arabinose isomerase polypeptide from *Thermotoga neopolitana*.

Claim 11.

The isolated polypeptide of claim 8, wherein said polypeptide is attached to a silica bead solid support.

Claim 16.

An arabinose isomerase produced by a method comprising:

- i) A host cell transformed with the polynucleotide sequence of SEQ ID NO: 3 from *Thermotoga neopolitana*.
- ii) Culturing the host cell in a medium, thereby producing the arabinose isomerase of SEQ ID NO: 4.

Claim 17.

On line 2, change "claim 9" to -- claim 8 --

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Claim 19.

The method of claim 17, wherein the reaction is carried out at a temperature of about 80°C.

Cancel claim 10, 12, 20, 23, 24, 25, 26, 27, 28.

Reason for allowance:

The closest prior art to the present invention is by Nelson et al. (Nature 1999). Nelson et al., disclose the identity and sequence of an arabinose isomerase from a thermophilic bacteria, *Thermotoga maritima* (see table 2, gene listed as TM0276) as part of a whole genome sequencing of *Thermotoga maritima*. The arabinose isomerase was identified based on sequence alignment showing 73% identity to *Salmonella choleraesuis* arabinose isomerases. The sequence disclosed by Nelson et. al. shows 96% sequence identity to the arabinose isomerases of the present invention. However the claims of the present application are drawn to the arabinose isomerases of *Thermotoga neopolitana*, the processes of producing and the use of the same for the production of tagatose.

In addition, Kim Pil et. al. in WO 02/0282 A1, disclose a thermostable arabinose isomerase from a thermophilic microbe capable of converting galactose to tagatose in high yield. However the sequence of the isomerase shows an overall identity of only 63.4% to the arabinose isomerase of the present invention. Thus neither of the above references anticipates the disclosure of the present invention.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kagne H Gebreyesus whose telephone number is 571-272-2937. The examiner can normally be reached on 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Achutamurthy ponnathapura can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Kagne H Gebreyesus PhD.